

Independent Government Cost Estimate (IGCE)

Edmund K. Kowalski – Financial Services Office
(FSO)

Rudy Bernd – Engineering Services Office (ESO)

Draft: July 20, 2006

Introduction (1 of 2)

- What is an “IGCE”?
 - The Independent Government Cost Estimate (IGCE) is the Government's estimate of the resources and their projected costs that a contractor would incur in the performance of a contract.
 - These resources/costs include
 - Direct Costs: labor and material
 - Indirect Costs: fringe benefits, overhead, and G&A
 - Other Direct Costs: supplies, equipment, transportation, DBA insurance, and OCONUS special allowances
 - Profit or fee

Introduction (2 of 2)

- Use of the IGCE:
 - the benchmark to determine
 - Contract Budget Amounts
 - Also Price Reasonableness
- No standard methodology for preparing an IGCE
 - Use whatever method provides the best estimate and satisfies the requirement for
 - Just a number or
 - ✓ A good, realistic projection of the expected cost/price
- Should be structured, realistic, supportable, etc.

WCC Customer Service Division (CSD)

- Two separate offices:
 - Financial Services Office (FSO)
 - Contract pricing
 - Accounting
 - Finance
 - Engineering Services Office (ESO)
 - Engineering
 - Technical
 - SOW/PWS
 - Market research (Germany/Europe)

WCC Assistance

- FSO and ESO can assist in IGCE preparation by providing
 - Structure
 - For the IGCE itself
 - RFP Section B – CLINs & SLINs
 - Cost estimates for
 - Direct Labor and Indirect Rates
 - Profit/fee
 - Escalation rates/economics
 - Check that the IGCE reflects the SOW/PWS
 - Insure all potential costs are covered

FAR Cite: IGCE

- Formerly discussed/required per FAR 15.803(b)
- ✓ **Currently:** FAR Part 7 Acquisition Planning
 - FAR 7.105(a)(3) Cost. “Set forth the established cost goals for the acquisition and the rationale supporting them, and discuss related cost concepts to be employed....”
- Section 3004, Federal Acquisition Streamlining Act: Requirement for Independent Cost Estimate (ICE) for development or production of a new military program

ACA IGCE Handbook

- An IGCE is required for every procurement action
 - In excess of the simplified acquisition threshold
 - Currently \$100,000 for non-commercial items
 - \$5 million for commercial items

IGCE Revisions

- The IGCE is not set in stone!
 - The IGCE can be revised based on,
 - new price/cost information,
 - the preparation of the solicitation,
 - the honing of RFP requirements,
 - and for its other uses.
 - contract budgetary amounts
 - price reasonableness benchmark
- The IGCE should be completed prior to the solicitation's release on "the street."

Factors Affecting IGCE Preparation

- Extent/depth of the IGCE is determined by:
 - Availability of price/cost data and other information
 - Estimator's skills
 - Time constraints
 - Type of item/service purchased
 - Type of contractual action
 - **Dollar value** of contractual action
 - Agency/department policy and procedures
 - Your team leader/supervisor (Dah Boss)

IGCE Basics

- Estimator should provide the basis of IGCE
 - Provide calculations
 - Decide on US dollars, euros, etc.
 - Provide narrative
 - Source of data/numbers used
 - Estimator's assumptions and rationale
 - Should match Section B of the RFP/IFB
 - Prices by CLIN and SLIN
 - Prices by program period
 - Reflect and cost-in the tasks/requirements stated in the
 - Scope of Work (SOW)
 - Performance Work Statement (PWS)

Important Point

- An IGCE is not the lowest or the highest possible estimated cost/price.
- It's the best estimate of what other contractors may propose:
 - It should take into account other technical approaches
 - It should take into account other cost structures
- There should be sufficient information (rationale and assumptions) to allow for the explanation of differences between the IGCE and an offered price (general and/or specific).

Who Prepares the IGCE?

- Customer/requiring activity prepares and/or supplies the IGCE. Why?
 - Knows the requirements (work/tasks to be performed)
 - ITS YOUR CONTRACT!
 - HOW CAN YOU MANAGE IT WITHOUT KNOWING THE WORK BEING PERFORMED OR HOW MUCH IT COSTS?
 - Has the technical experience
 - Knows the current contract/contractor
 - Familiar with manpower and other resources currently being used

How Are IGCEs Prepared?

- Two extremes with lots of variations in between
 - Most common?
 - Previous contract price with adjustment for economics
 - Least costly
 - Similar item or service
 - Least common method?
 - Bottoms up/detailed estimate
 - Most costly

Cost Estimating Methods Used

- Four common method categories:
 - **Round Table**: Experts get together and make judgments on projected costs/prices
 - **Comparison**: Adjustments are made to a past or current item/service to derive the cost/price
 - **Parametric**: Projections are based on formulas, or cost/price estimating relationships
 - **Detailed**: A thorough review is made, with detailed information comprising the estimate

Parametric Estimating

- Cost Estimating Relationship (CER)
 - Using rough yardsticks (ratios) such as dollars per pound or per horsepower and cost per square foot as in construction
- Regression/correlation analysis
 - A single independent variable (X) is used to predict the value of a single dependent variable (Y).
- Logarithmic function (or learning curve)
 - **Simple** definition: costs (hours) decline by a predictable amount (percentage) each time accumulated volume doubles

Adjustment Factors

- Quantity
 - Some quantitative measure of the work being performed
 - Labor time
 - More/less tasks to be performed
 - Work sites
- Escalation or “Economics”

Some Considerations

- Direct versus Indirect charges
 - Charge supervision or management direct or assume costs are in the indirect rates?
 - Other costs
 - Travel
- Government contractors seem to be direct charging as much as possible

Detailed Estimate: Major Cost Elements

- Direct Material
 - Scrap/Freight
 - Material Handling
- Direct Labor
 - Direct Labor Categories
 - Direct Labor Rates
 - Direct Labor Hours
- Indirect Costs
 - Fringe Benefits
 - Overhead
- Other Direct Costs
 - Travel
 - Airfare
 - Per Diem
 - Tools/Equipment
 - Subcontractors
- General and Administrative Expenses (G&A)
- Profit/Fee

Material Estimating

- The material may be proposed in one of two general ways:
 - 1 Summary material cost estimate
 - single cost figure
 - several major cost categories
 - 2 Detailed material cost estimate
 - Bill of Materials (BOM)

Material Cost Estimate

Example (1 of 2)

<u>Material Summary:</u>				
Deliverable Material				\$1,375
Key Supplier				12,168
Miscellaneous Material				<u>271</u>
Total				<u>\$13,814</u>

Material Cost Estimate

Example: BOM (2 of 2)

Part		Unit		Extended	Extra		Cost
<u>Number</u>	<u>Description</u>	<u>Price</u>	<u>QTY</u>	<u>Price</u>	<u>Charge</u>	<u>Vendor</u>	<u>Basis</u>
9876543	Housing Casing	84.72	468	39,648.96	1,000	Pic Corp.	Quote
9876542	Bearing	14.89	936	13,937.04	0	Sun Co.	Quote
9876541	Gear, 14-tooth	4.18	1,872	7,824.96	0	Autoco	P.O.
9876540	Cable Assembly	328	468	153,504.00	0	Rockaway	Estimate
9876539	Bracket, Main	23.97	1,404	<u>33,653.88</u>	<u>0</u>	Cee Corp.	Quote
Total				248,568.84	1,000		

Summary Material Cost Estimates

- Two General Proposed Cost Methods:
 - 1 **Round Table Estimates.** Proposed costs based on expert opinion such as “engineering estimates” or “professional judgment.”
 - 2 **Comparison Estimates.** Proposed costs based on data from efforts completed or in process. Historic data (actuals) for the same or similar items/efforts are used or adjusted for comparison purposes (Parametrics, Cost Estimating Relationships or CERs, Learning Curves, etc.)

Detailed Material Cost Estimates

- More costly to develop and analyze than the summary estimate.
- Two basic tasks for the estimator
 - 1 estimate all the material needed
 - kinds (types) of material
 - quantities of materials
 - 2 estimate material costs/prices

Direct Labor: General Descriptions

- Engineering Labor
 - General
 - Mechanical
 - Process
 - Manufacturing
 - Production
 - Electrical & Electronic
 - Industrial
 - Chemical
 - Software
 - CAD/CAM
- Manufacturing Labor
 - Assembly
 - Fabrication
 - Machining
 - Inspection/Test/Quality
- Other
 - Integrated Logistics Support (ILS)
 - Field Service Representative (FSR)
 - Administrative
 - Contracting

Estimating Direct Labor Rates

- Sources of actual/current labor rates
 - Bureau of Labor Statistics (BLS)
 - General labor classification: white/blue collar, salaried/hourly, government/private sector, etc.
 - Specific (but still general) labor category
 - Global Insight (econometric forecasting company)
 - Professional societies
 - Private services (fee may be required)
 - Informal sources
 - Word of mouth
 - Current/previous contracts
 - Federal Government General Schedule (GS)

Direct Labor Rate

Example # 1

<u>Description</u>	<u>Hourly Rate</u>	<u>Labor Hours</u>	<u>Amount</u>
Factory Labor	\$15.50	150	\$2,325
Engineering Labor	\$25.00	60	\$1,500

Direct Labor Rate

Example # 2

<u>Description</u>	<u>Hourly Rate</u>	<u>Labor Hours</u>	<u>Amount</u>
Engineering:			
- Entry Level	\$13.00	100	\$1,300
- Journeyman	\$20.00	300	\$6,000
- Senior Level	\$25.00	<u>100</u>	<u>\$2,500</u>
Total	\$19.60	500	\$9,800

Loaded Labor Rate

- **Loaded rate:** an hourly rate that is comprised of the base direct labor rate plus fringe benefits, direct labor overhead, G&A, Profit, and Cost of Money (may include some or all of these cost elements).
 - *Example: Car Repair Labor Rate.*
- A **\$25 direct hourly rate** translates into a **\$89.10 loaded rate** when 200% overhead, 8% G&A, and 10% profit are added.
 - How Calculated?
 - See next slide.

Loaded Labor Rate Calculation

<u>Cost Element</u>	<u>Rate</u>	<u>Amount</u>	<u>Calculation</u>
DL Rate		\$25.00	N/A
Overhead	200%	50.00	$25 \times 200\%$
G&A	8%	6.00	$(25 + 50) \times 8\%$
Profit	10%	<u>8.10</u>	$(25 + 50 + 6) \times 10\%$
Total or Loaded Rate		\$89.10	$25+50+6+8.10$

Estimating Labor Time

- Direct Labor Hours may be proposed as the employee's labor time for the year or by month.
- One man-year is 2,080 hours or 173.3 per month.
 - If the above hours are proposed by the contractor, it would overstate the direct labor time.
 - An adjustment needs to be made for “off-the-job” time such as vacation, holidays, etc. (classified as fringe benefits), that are accounted for in the overhead, reducing the labor time.
 - The adjusted man-year/month will vary per the company.
 - Technical/salaried personnel may be in the 1800 hour range.
 - Factory personnel may be in the high 1700 hour range.
- The next slide illustrates this concept.

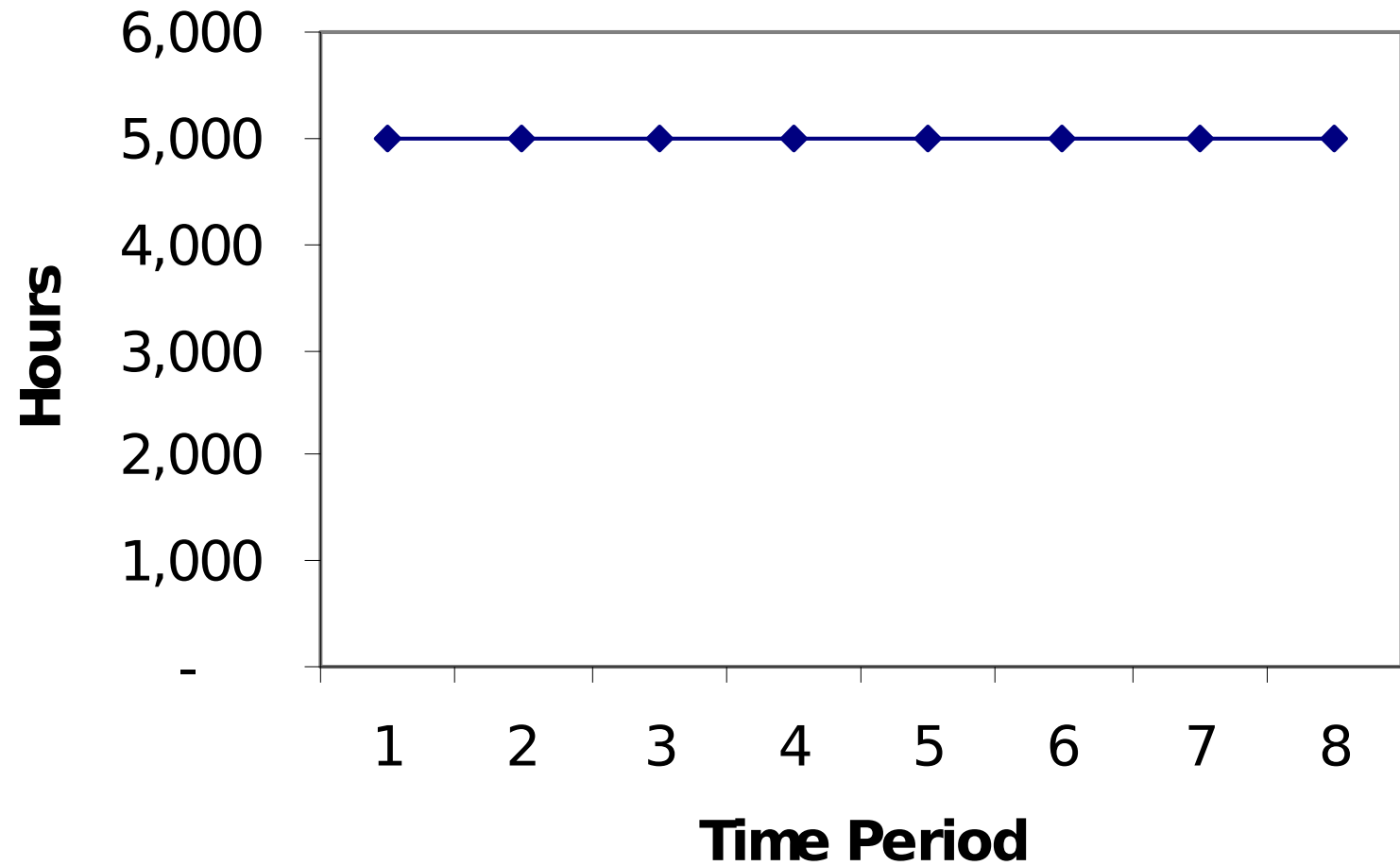
Man-Hours per Year

	<u>Hours/Day</u>		<u>Days/Week</u>		<u>Weeks/Year</u>		<u>Hours/Year</u>		<u>Months/Year</u>		<u>Hours/Month</u>
	8	x	5	x	52	=	<u>2,080</u>	/	12	=	<u>173.3</u>
Less:			<u>Days/Year</u>								
Holidays	8	x	13			=	104				
Vacation	8	x	10			=	80				
Sickleave	8	x	5			=	40				
Other	8	x	5			=	<u>40</u>				
Total							264				
Adjusted							<u>1,816</u>				<u>151.3</u>

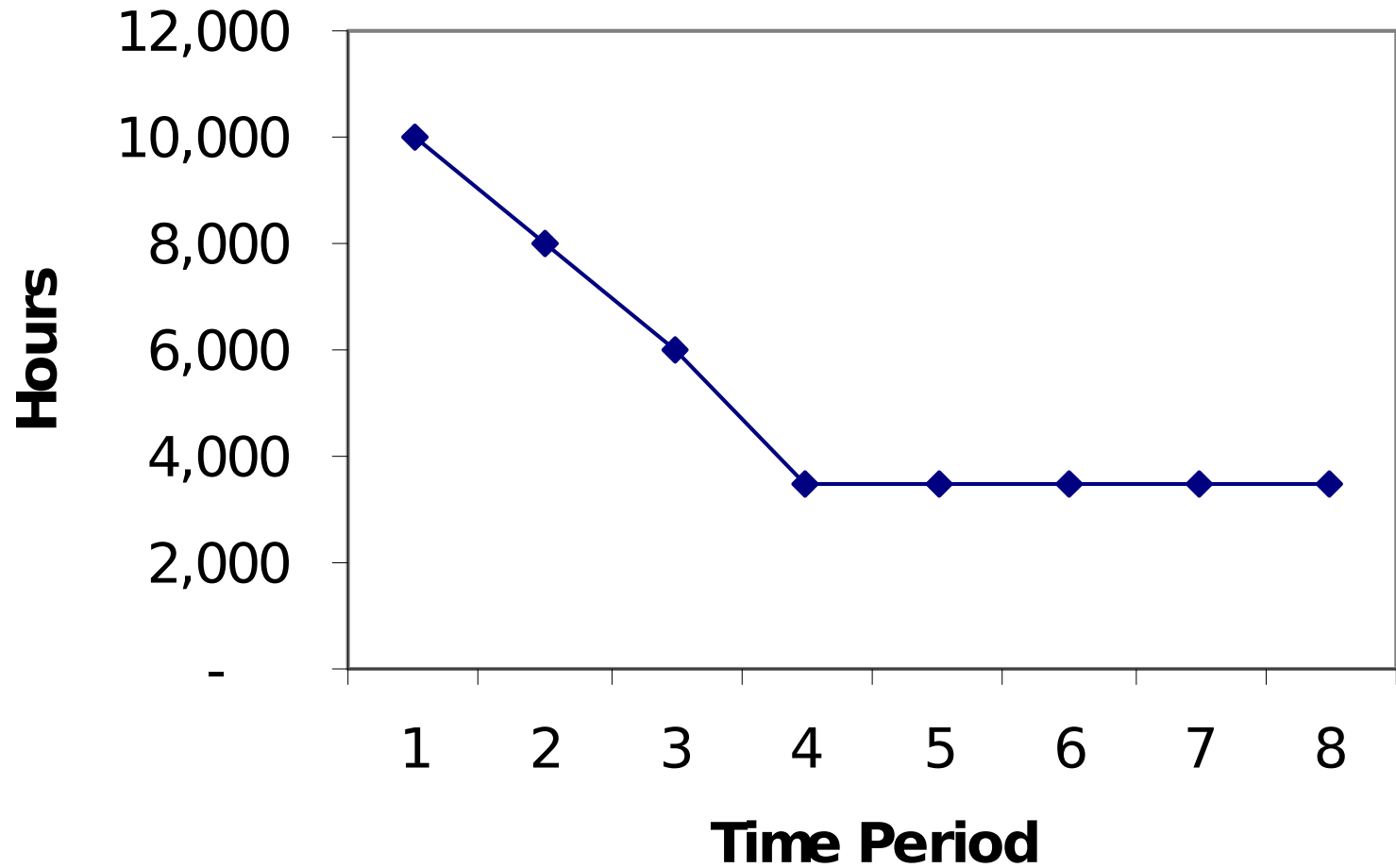
Direct Labor Hour Time Phasing

- Direct labor tasks are performed at various stages in the contract performance period.
 - **Factory labor.** Assembly is one month prior to delivery. Machining/fabrication is one to two months prior to delivery.
 - **Engineering labor.** Varies based on task. Design effort is expended early. Production support is heavy in early period, dropping off as the program matures.
- Spread of Hours (following slides provide examples):
 - Linear
 - Front loaded
 - Back loaded
 - Early peak

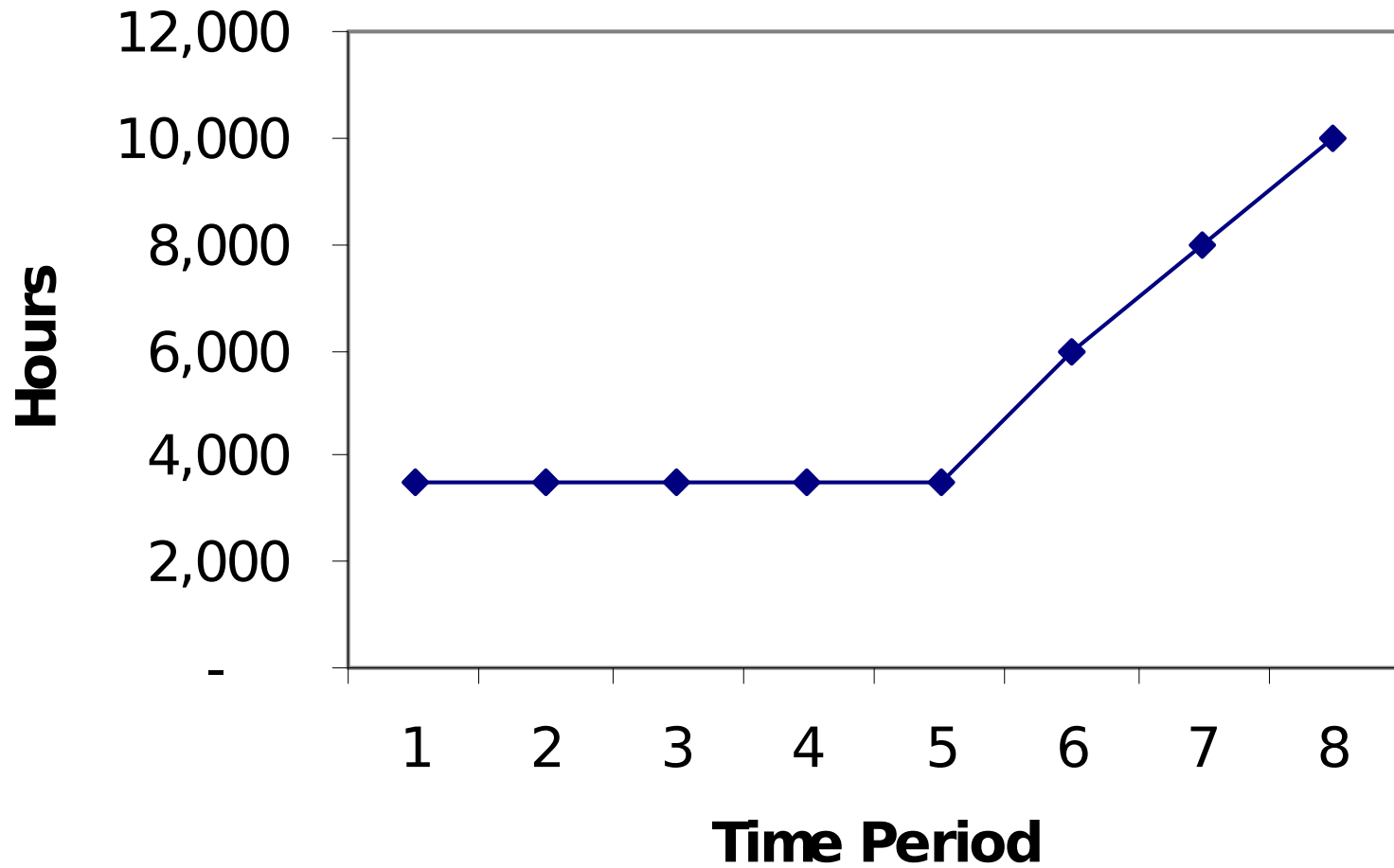
Linear Spread of Hours



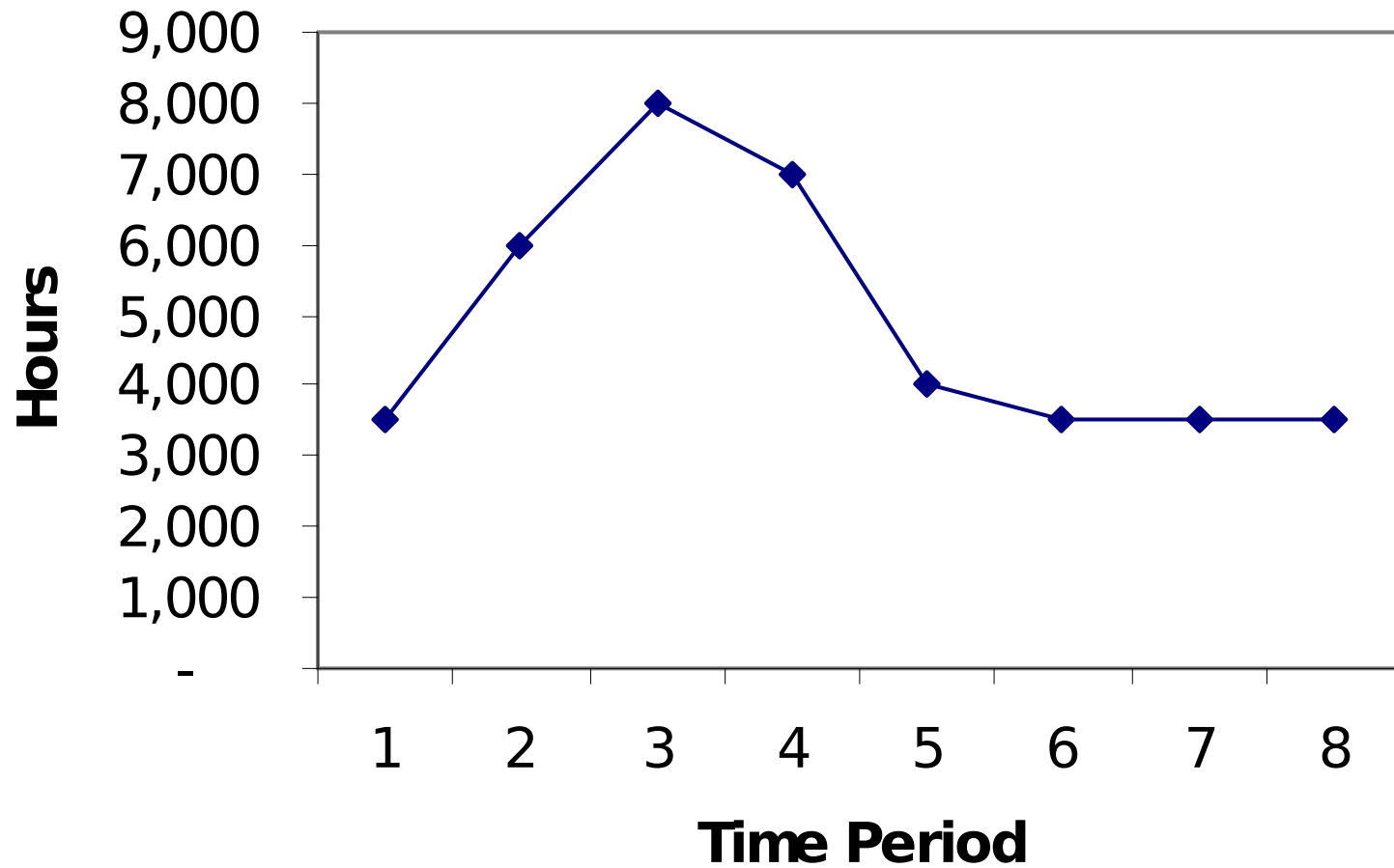
Front Loaded Spread of Hours



Back Loaded Spread of Hours



Early Peak Spread of Hours



Direct Engineering and/or Administrative Labor (1 of 3)

- Task Approach
 - Total effort divided into parts
 - Effort related to time, skills, or available individuals/labor categories
- Ratio of Support
 - Estimate man-months of the “creative” or major effort
 - Historic/judgmental factor applied for support effort

Direct Engineering and/or Administrative Labor (2 of 3)

- Availability
 - Know available manpower and projects
 - Effort proposed based on current/projected manpower.
- Production Engineering Ratio
 - Direct relationship with production effort
 - Effort decreases with production/time
 - Factor applied

Direct Engineering and/or Administrative Labor (3 of 3)

- Learning Curve
 - Recurring/nonrecurring effort assumed
 - Assume bulk of nonrecurring effort expended prior to first delivery
 - Remaining recurring effort diminishes with production/time
- Level of Effort
 - Stability in design, effort, or production
 - Given number of hours for liaison.

Other Direct Costs (ODCs)

- Examples:
 - Pre-production/Start-Up or Set-Up Costs
 - (Special) Test Equipment/Tooling
 - (Special) Certifications
 - Travel Expenses
 - Preservation/Packaging/Packing
 - Transportation
 - DBA Insurance
- Includes many expenses usually charged as indirect
- ODCs may be estimated using the same techniques as those for material

Basic Cost Element Breakdown

Proposed Price By Cost Element				
Item/Service:				
RFP:				
CLIN:				
SLIN:				
Date/Time:	3/29/2006 10:52			
File Name:				
Cost Element:	Hours	Rate	Base	Amount
Material:				
Direct Material				100
Scrap/Discount/Miscellaneous		1%	100	1
Material Handling		2%	101	2
Total Material				103
Direct Labor:				
Labor Category 1	5	5.00		25
Labor Category 2	6	2.00		12
Total	11	3.36		37
Fringe Benefits		3%	37	1
Overhead		4%	38	2
Other Direct Costs (ODC's)				
Subcontracts				100
Transportation:				50
Total ODC's				150
Subtotal				193
G&A Expenses		5%	193	10
Total Costs				202
Profit		1%	202	2
Unit Price				204
Quantity				2
Total Price				409

Cost Element Breakdown

Loaded Labor Rate Calculation Template																
Item/Service:																
RFP:																
CLIN:																
SLIN:																
Date/Time:	2/28/2006 11:08															
File Name:																
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
				(3)*(4)	(5)*(6)	(5)+(6)	(7)*(8)	(7)+(8)	(8)*(9)	(8)+(9)	(11)*(12)	(11)+(12)	(13)*(14)	(13)+(14)		(15)*(16)
		Rates:			1.00%		2.00%		3.00%		4.00%		1%		Est	Est
			Base	Composite		Adj									Labor	Total
<u>CLIN/SLIN</u>	<u>Labor Category</u>	<u>WGT</u>	<u>Lbr Rate</u>	<u>L Rate</u>	<u>Esc</u>	<u>LR</u>	<u>FB</u>	<u>ST</u>	<u>O/H</u>	<u>ST</u>	<u>G&A</u>	<u>TC</u>	<u>Profit</u>	<u>LLR</u>	<u>Hours</u>	<u>Price</u>
	Automotive Mechanic	40%	1.00 €	0.40 €												
	Metal Body Repairman	20%	2.00 €	0.30 €												
	Elec Tech/Mechanic	30%	3.00 €	0.20 €												
	Fuel/Elec Sys Mechanic	<u>10%</u>	4.00 €	<u>0.10 €</u>												
0001AA	Composite	100%		1.00 €	0.01 €	1.01 €	0.02 €	1.03 €	0.03 €	1.06 €	0.04 €	1.10 €	0.01 €	1.11 €	100	111.46 €

IGCE: Conclusion

- An IGCE is the best attempt at projecting a future price or prices
 - If you could predict the future, you wouldn't be working for the government
 - You would be rich!
- The IGCE is a procurement sensitive document
 - Access shall be on a need to know basis
- There are offices at WCC, the FSO and ESO, that can assist you in IGCE preparation